

CUSTOMER NO.: 24498

Serial No. 09/916,919

Reply to Final Office Action dated: 05/17/06

Response dated: 8/02/06

**PATENT
PU010161**

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REMARKS

In the Office Action, the Examiner noted that claims 1-20 are pending in the application and that claims 1-20 stand rejected. None of the Applicant's claims are amended by this response.

In view of the following discussion, the Applicant respectfully submits that none of these claims now pending in the application are obvious under the provisions of 35 U.S.C. § 103. In addition, the Applicant submits that all of the Applicant's claims satisfy the requirements of 35 U.S.C. § 112 and are patentable thereunder. Thus the Applicant believes that all of these claims are now in allowable form.

Rejections

A. 35 U.S.C. § 112

The Examiner rejected the Applicant's claims 1-4, 6-17 and 19 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that the claims contain subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is respectfully traversed.

More specifically, the Examiner alleges that claims 1 and 12 have been amended to language not existing in the originally filed application such as "improve encoding efficiency". The Applicant respectfully disagrees.

The Applicant respectfully points out to the Examiner that the Applicant in the Specification specifically recites and teaches "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" as claimed in at least the Applicant's claims 1 and 12. More specifically, the Applicant in the Specification specifically recites:

"In one arrangement, a dummy program signal can be generated, which can then be combined with one or more of the incoming sampled video signals to produce a combination of sampled signals in which the combined resolution of the combined signals - including the dummy signal - is equal to that of a D1 signal. A dummy program signal can be a video

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signal that contains no programming, *i.e.*, a blank picture. As an example, if three D1 signals are received, it may be desired to sample these signals down to 1/4 D1 signals, as the 1/4 D1 format is a conventional format. Notably, however, if three D1 signals are received and sampled down to 1/4 D1, the combined lines of resolution do not equal that of a full D1 signal. Significantly, many video encoders operate more efficiently on video signals with the resolution in a D1 signal. Thus, it may be **useful to combine a dummy program signal to the 1/4 D1 signals to enable the encoder to operate more efficiently**. It should be noted, however, that the invention is not limited to this particular example, as a dummy program signal can be added to any suitable number of sampled video signals for purposes of improving video encoder performance. (See Specification, page 9, lines 8-22). (emphasis added).

As clearly evidenced by at least the portion of the Applicant's Specification presented above, the Applicant respectfully submits that the technical feature of at least claim 1 and claim 12, and more specifically "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" is clearly supported throughout the Applicant's Specification and specifically on page 9, lines 8-22.

Therefore, the Applicant respectfully submits that for at least the reasons recited above, claims 1-4, 6-17 and 19 fully satisfy the requirements of 35 U.S.C. § 112, first paragraph, and are patentable thereunder.

B. 35 U.S.C. § 103

The Examiner rejected claims 1-3, 6-17 and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka (U.S. Patent 5,764,847) in view of Sato et al. (U.S. Patent 5,566,174, hereinafter "Sato"). The rejection is respectfully traversed.

The Examiner alleges that regarding claim 1 and 12, Tanaka teaches all of the aspects of the Applicant's claims except that Tanaka fails to teach providing a dummy input to be combined with at least one of the inputs. As such, the Examiner cites Sato for teaching providing a dummy input to be combined with at least one of the inputs as taught and claimed by the Applicant. The Applicant respectfully disagrees.

The Applicant agrees with the Examiner that Tanaka fails to teach providing a dummy input to be combined with at least one of the inputs, however the

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Applicant further submits that Tanaka fails to teach, suggest or make obvious other technical features of the Applicant's invention at least with regards to claims 1 and 12. More specifically, the Applicant's claim 1 specifically recites:

"A method of recording multiple programs onto a storage medium, comprising the steps of:
receiving a plurality of multimedia inputs, each having at least one respective, different program therein;
sampling the multimedia inputs such that the sampled multimedia inputs contain a portion of the plurality of multimedia inputs;
providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency;
combining the sampled multimedia inputs **and said at least one dummy input signal;** and
encoding the combined multimedia inputs such that the number of encoding devices required to encode the combined multimedia inputs is less than the number of the plurality of programs." (emphasis added).

The Applicant's invention is directed at least in part to a method for recording multiple programs onto a storage medium and systems for encoding a plurality of programs including sampling the multimedia inputs such that the sampled multimedia inputs contain a portion of the plurality of multimedia inputs, each of the multimedia inputs having at least one respective, different program therein, providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency, combining the sampled multimedia inputs and the at least one dummy input signal and encoding the combined multimedia inputs such that the number of encoding devices required to encode the sampled multimedia inputs is less than the number of the plurality of programs.

In support of the Applicant's invention, at least as claimed by the Applicant's independent claim 1 recited above, the Applicant in the Specification, specifically recites:

"As shown in FIG. 1, the encoding path 110 can include one or more samplers 114 for sampling a corresponding number of video signals. These sampled video signals can then be fed to a video combiner 116, which can combine or merge these sampled video signals. Next, these signals can be encoded by the video encoder 118 and then transferred to a multiplexer

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120. The encoding path 110 can also contain one or more samplers in the form of downmixers 122 for sampling or downmixing a corresponding number of audio signals. The downmixed audio signals can then be sent to an audio combiner 123, which can combine the downmixed audio signals. These downmixed audio signals can then be encoded by an audio encoder 124 and transferred to the multiplexer 120, which can multiplex the audio and video signals." (See Applicant's Specification, page 5, lines 7-17).

And

"Specifically, a plurality of multimedia inputs can be received, and these inputs can be sampled such that the sampled multimedia inputs contain a portion of the plurality of multimedia inputs. These sampled multimedia inputs can then be combined and encoded such that the number of encoding devices required to encode the sampled multimedia inputs is less than the number of the plurality of multimedia inputs or alternatively, less than the number of sampling devices used to sample the plurality of multimedia inputs." (See Applicant's Specification, page 6, line 22 through page 7, line 4).

The Applicant, in the Specification, further recites:

"In one arrangement, a dummy program signal can be generated, which can then be combined with one or more of the incoming sampled video signals to produce a combination of sampled signals in which the combined resolution of the combined signals - including the dummy signal - is equal to that of a D1 signal. A dummy program signal can be a video signal that contains no programming, i.e., a blank picture. As an example, if three D1 signals are received, it may be desired to sample these signals down to 1/4 D1 signals, as the 1/4 D1 format is a conventional format.

Notably, however, if three D1 signals are received and sampled down to 1/4 D1, the combined lines of resolution do not equal that of a full D1 signal. Significantly, many video encoders operate more efficiently on video signals with the resolution in a D1 signal. Thus, it may be useful to combine a dummy program signal to the 1/4 D1 signals to enable the encoder to operate more efficiently." (See Applicant's Specification, page 7, lines 11-24).

It is clear from at least the portions of the Applicant's disclosure presented above that the Applicant's invention is directed, at least in part, to a method and systems for recording multiple programs onto a storage medium and for encoding a plurality of multimedia input signals comprising various different programs, including sampling multimedia inputs such that the sampled multimedia inputs contain a portion of a plurality of received multimedia inputs and providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve

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encoding efficiency. That is, as taught and claimed by the Applicant, in the claimed embodiments of the Applicant's invention, a dummy signal is a combined with the sampled signals to enable an encoder to operate more efficiently.

The Applicant respectfully submits that Tanaka further fails to teach, suggest, disclose or make obvious a method for recording multiple programs onto a storage medium and systems for encoding a plurality of multimedia input signals having respective, different programs therein including at least "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's claims 1 and 12.

That is, the Examiner concedes that Tanaka fails to disclose providing a dummy input to be combined with at least one of the inputs, however, even further, Tanaka fails to disclose providing a dummy signal to be combined with "the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's claims 1 and 12.

Instead, Tanaka teaches a digital signal recording apparatus arranged to be capable of permitting long-time recording on one and the same recording medium without impairing the quality of audio signals at all. In Tanaka the apparatus has a first mode in which a digital video signal supplied from a video input circuit and having the amount of information not compressed by a video compression circuit is recorded on the recording medium by a recording circuit while all of n channel digital audio signals supplied from an audio input circuit are recorded by the recording circuit; and a second mode in which the digital video signal having the amount of information compressed by the video compression circuit and only part of the n channel digital audio signals supplied from the audio input circuit are recorded by the recording circuit. (See Tanaka, Abstract).

That is, Tanaka absolutely fails to teach, suggest or anticipate generating or providing a dummy program signal which can then be combined with one or more

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of the incoming sampled video signals to produce a combination of sampled signals for improving the efficiency of encoding.

As such, the Applicant respectfully submits that the teachings and disclosure of Tanaka fail to teach, suggest or make obvious many more technical features of the Applicant's invention, at least with respect to claims 1 and 12, than just providing a dummy input to be combined with at least one of the inputs as conceded by the Examiner.

The Applicant further submits that Sato absolutely fails to bridge the substantial gap between the teachings and disclosure of Tanaka and the Applicant's invention, at least with regards to claims 1 and 12.

More specifically, the Examiner cites Sato for teaching that when recording to a tape recording medium, wherein an input having an unknown rate can be varying and/or bursty, providing a means to input dummy data met by a NULL packet generator thereby to process the video to a known rate fixed and constant in order to record to the DVCR. That is, Sato teaches adding NULL packets such that a DVCR can reconstruct at playback a transport stream without loss of information. In addition, Sato specifically recites:

"...these null packets 49 are used merely to fill gaps in the recording stream and serve no MPEG function. (See Sato, col. 9, lines 30-31).

The Applicant submits that a combination of the teachings of Tanaka and Sato would result in a digital signal recording apparatus arranged to be capable of permitting long-time recording on one and the same recording medium without impairing the quality of audio signals at all, where the apparatus has a first mode in which a digital video signal supplied from a video input circuit and having the amount of information not compressed by a video compression circuit is recorded on the recording medium by a recording circuit while all of n channel digital audio signals supplied from an audio input circuit are recorded by the recording circuit; and a second mode in which the digital video signal having the amount of information compressed by the video compression circuit and only part of the n channel digital audio signals supplied from the audio input circuit are recorded by the recording circuit, where during playback null packets are added to a transport

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stream such that the recording apparatus can playback a transport stream without loss of information. Moreover, combining the teachings of Sato for adding NULL packets to a transport stream can compromise the invention of Tanaka for a digital video and audio signal recording apparatus which is capable of retaining adequate tone quality even with small amounts of audio information. As such, a combination of the references is not only not suggested in either reference, but also would be considered undesirable by those skilled in the art because combining the references would compromise the functionality of at least the invention of Tanaka.

More importantly, the Applicant submits that Sato also absolutely fails to teach, suggest or make obvious at least a method for recording multiple programs onto a storage medium and systems for encoding a plurality of multimedia input signals having respective, different programs therein including at least "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's claims 1 and 12. That is, there is not teaching or suggestion in Sato for a dummy input signal to be combined with a plurality of multimedia inputs that have been sampled such that the sampled multimedia inputs contain a portion of the plurality of multimedia inputs to improve encoding efficiency. Furthermore, Sato absolutely fails to teach, suggest or make obvious combining the sampled multimedia inputs with the dummy input signal as taught in the Applicant's Specification and claimed in at least the Applicant's claims 1 and 12. Instead, Sato teaches inserting NULL packets such that a DVCR can reconstruct at playback a transport stream without loss of information and fails to teach, suggest, anticipate or make obvious providing dummy signals to be combined with the sampled multimedia inputs to improve encoding efficiency. Even further the Applicant submits that Sato fails to teach, suggest or make obvious at least "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's independent claims. Instead, Sato teaches inserting NULL packets such that a DVCR can reconstruct at playback a transport stream without loss of information and not providing dummy signals to be

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combined with the sampled multimedia inputs to improve encoding efficiency and Tanaka teaches recombining portions of a single audio or video signal for encoding and is silent regarding combining dummy signals with sampled signals.

As such and for at least the reasons recited above, the Applicant respectfully submits that the combination of the teachings of Tanaka and Sato fail to teach, suggest, anticipate or make obvious at least a method for recording multiple programs onto a storage medium and systems for encoding a plurality of multimedia input signals having multiple programs including at least "sampling the multimedia inputs such that the sampled multimedia inputs contain a portion of the plurality of multimedia inputs" and "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's independent claims 1 and 12 and independent claim 20.

Therefore, the Applicant submits that for at least the reasons recited above independent claim 1 is not rendered obvious by the teachings of Tanaka and Sato, alone or in any allowable combination, and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Likewise, independent claims 12 and 20 recite similar relevant features as recited in the Applicant's independent claim 1. As such, the Applicant submits that for at least the reasons recited above independent claims 12 and 20 are also not rendered obvious by the teachings of Tanaka and Sato, alone or in any allowable combination, and also fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

Furthermore, dependent claims 2-3, 6-11, 13-17 and 19 depend either directly or indirectly from independent claims 1 and 12 and recite additional features therefor. As such and for at least the reasons set forth herein, the Applicant submits that dependent claims 2-3, 6-11, 13-17 and 19 are also not rendered obvious by the teachings of Tanaka and Sato, alone or in any allowable combination. Therefore the Applicant submits that dependent claims 2-3, 6-11, 13-17 and 19 also fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

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The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

C. 35 U.S.C. § 103

The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Sato and further in view of Campbell et al. (U.S. Patent 4,967,271, hereinafter "Campbell"). The rejection is respectfully traversed.

The Examiner states that regarding claim 4, the teachings of Tanaka and Sato fail to teach up-converting at least one of the sampled multimedia inputs. As such the Examiner cites Campbell for teaching the up-converting of the Applicant's claim 4. The Applicant respectfully disagrees.

As recited above and for at least the reasons recited above, the Applicant respectfully submits that the teachings of Tanaka and Sato, alone or in any allowable combination, fail to teach, suggest or make obvious the Applicant's independent claim 1. As such, the Applicant further submits that the teachings of Tanaka and Sato, alone or in any allowable combination, also fail to teach, suggest, anticipate or make obvious the Applicant's claim 4, which depends indirectly from the Applicant's independent claim 1 and recites additional features therefor.

In addition, the Applicant respectfully submits that the teachings of Campbell fail to bridge the substantial gap between the Applicant's invention and the teachings of Tanaka and Sato. That is, as described above, the Applicant respectfully submits that Tanaka and Sato, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method for recording multiple programs onto a storage medium and systems for encoding a plurality of multimedia input signals having multiple programs including at least "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1. The Applicant further submits that Campbell also fails to teach, suggest or make obvious at least a method for

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recording multiple programs onto a storage medium and systems for encoding a plurality of multimedia input signals having multiple programs including at least "providing at least one dummy input signal to be combined with the sampled multimedia inputs to improve encoding efficiency" and "combining the sampled multimedia inputs and said at least one dummy input signal" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1.

More specifically, the teachings of Campbell for a Television scan line doubler including temporal median filter fail to bridge the substantial gap between the Applicant's invention and the teachings of Tanaka. The Applicant submits that there is absolutely no teaching or suggestion in Campbell for providing a dummy program signal which can then be combined with one or more of the incoming sampled video signals to produce a combination of sampled signals for improving the efficiency of encoding. For example, the Applicant teaches that in one embodiment of the Applicant's invention, dummy signals are generated and combined with sampled multimedia signals such that the combined resolution of the combined signals - including the dummy signal - is equal to that of a D1 signal.

As such, the Applicant submits that the teachings of Tanaka, Sato and Campbell, alone or in any allowable combination also fail to teach, suggest or make obvious the Applicant's claim 4, which depends indirectly from the Applicant's independent claim 1 and recites additional features therefor.

Therefore, the Applicant submits that dependent claim 4, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

In the Office Action, the Examiner conceded that there were differences in the teachings and invention of the Applicant's Specification and the cited references. The Applicant respectfully submits that the claims of the present application specifically claim the differences between the teachings of the Applicant's Specification and the teachings of the cited references.

As such, the Applicant submits that none of the claims, presently in the application, are obvious under the provisions of 35 U.S.C. § 103. In addition, the

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Applicant submits that all of the Applicant's claims satisfy the requirements of 35 U.S.C. § 112 and are patentable thereunder. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.


If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account No. 07-0832.

Respectfully submitted,

SHU LIN

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